

## **WQB "Wide Aperture Quad" for Main Injector**

23 June 2005, 9:00 AM

IB2 conference room

Attendees: Linda Alsip, Weiren Chou, Hank Glass, Dave Harding, Bill Robotham, Linda Valerio

### **Design**

Linda V. reported that AD wanted the BPM to be welded to the beam tube in the magnet at one end and the previously agreed upon quick disconnect flange at the other end. The biggest advantages seem to be a saving of space, a reduction in the number of joints to be leak checked in the tunnel, and the permanent establishment of a link between the BPM and the quad. This would involve some reshuffling between the Lambertsons and Linda still need to check with the techs to see whether this would be a problem. On six out of seven of the magnets the BPM would be on the lead end, but at the p-bar extraction point it needs to be on the return end of the magnet. The question then raises its head of how to configure the two spares. Welding the BPM and flange on is not an irreversible operation, but it should be avoided if reasonably possible. Linda will confer with her department. Options discussed:

1. Weld a BPM and flange on both spare magnets, one in each configuration. This assures that if a magnet is needed, one will be ready in the correct configuration. The repaired magnet would be returned to its original configuration to maintain the mix. If a second magnet of the same configuration were to fail before the rebuilding was complete, the second spare could be reconfigured as needed.
2. Weld a BPM and flange on one magnet in the majority configuration and leave them off of the other spare. If a majority spare is needed, it is ready; if a minority spare is needed, weld the parts on as needed. Rebuild the failed magnet to return to the same distribution.
3. Leave the BPM and flange off of both spares. If a spare is needed, weld the BPM and flange on the appropriate ends and install.
4. Revert to the two flange configuration allowing a universal spare ready for the tunnel.

### **Procurement**

The TD/EF Tooling Group is making the bent tube manifolding parts for the first two magnets. We will try to find an outside source for the balance. There are a few other parts still due. Tooling will be making a few jumpers as well.

### **Fabrication**

WQB001 is not yet welded. The magnet was surveyed in anticipation of welding. Then there was difficulty finding a second portable welding machine, so it was decided to accelerate the planned move of the rollover fixture to under one of the overhead machines rather than wait until the second magnet. After the move the magnet is being resurveyed and Bill will need to digest the data. Then a second welder will need to be arranged to complement the one usually assigned to the Industrial Area. Roughly two more weeks are estimated after that for manifolding, painting, and inspection before the magnet is sent to MTF.

The cores have been stacked for the second magnet and the coils have been potted. The main coils for the third magnet have been wound.

### **MTF Measurement plan**

Hank showed a sketch of the proposed measurement coil locations in the aperture. The specified good field region is well covered. They are now planning to use a longer probe built for IQC and IQD measurements to ensure that the fringe field is captured. This will require building a central support fixture to avoid probe sagging. Since the single wire stretched wire system will be used to measure the field center on the first few magnets, it can also be used to measure the field beyond the reach of the Morgan coils.

### **Schedule**

The milestone of welding the first magnet assembly was not achieved 8 days early, as had been hoped at the last meeting, but it may still be reached 5 days early.

Weiren reported on the planned installation schedule. They have been given a shutdown budget of five weeks. The Lambertson bake out and pump-down after installation takes a week, and lack of equipment prevents doing more than one at a time. Also, manpower will be in short supply. So, the plan is to just install the four magnets at the high energy extraction points. If there is a one-week opportunity before then, they would install the magnet at the p-bar extraction point, since its lower activation level would not require a cool-down period. TD will continue pressing to finish all the magnets.

**Next meeting: Thursday, 7 July, 9:00 AM, IB2 Conference Room**